

SEQUENCE LISTING

<110> Allen, Steve  
Helentjaris, Tim  
Hitz, Bill  
Kinney, Tony  
Tingey, Scott

<120> Plant Sugar Transport Proteins

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<151> April 24, 1998

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Lys Lys Glu Phe Asn Leu Gln Ser Glu Pro Leu Ile Glu Gly Leu Ile  
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Val Ala Met Phe Leu Ile Gly Ala Thr Val Ile Thr Thr Ser Pro Gly  
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Pro Arg Ala Asp Cys Val Gly Arg Arg Pro Met Leu Val Ala Ser Ala  
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Val Leu Tyr Phe Val Ser Gly Leu Val Met Leu Trp Ala Pro Ile Val  
85 90 95

Tyr Ile Leu Leu Leu Ala Arg Leu Ile Asp Gly Phe Gly Ile Gly Leu  
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Ala Val Thr Leu Val Pro Leu Tyr Ile Ser Glu Thr Ala Pro His Arg  
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Xaa Ser Trp Gly Xaa Xaa Asn Thr Leu Pro Gln Phe Ile Gly Val Xaa  
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Gly Gly Met Phe Leu Ser Tyr Cys Met Val Phe Gly Met Ser Leu Met  
145 150 155 160

Pro Lys Pro Asp Trp Arg Leu Met Leu Gly Val Leu Ser Ile Pro Ser  
165 170 175

Leu Xaa Tyr Phe Gly Leu Thr Val Phe Tyr Leu Pro Glu Ser Pro Arg  
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Trp Leu Val Ser Lys Gly Arg Met Ala Glu Ala Lys Arg Val Xaa Gln  
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Glu Gly Leu Gly Val Gly Lys Asp Thr Arg Ile Xaa Glu Tyr Ile Ile  
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Glu Gln Ile Thr Leu Tyr Gly Pro Glu Glu Gly Gln Ser Trp Ile Ala  
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Arg Pro Ser Lys Gly Pro Ile Met Leu Gly Ser Val Leu Ser Leu Ala  
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Gly Ser Met Arg Ser Thr Leu Phe Pro Asn Phe Gly Ser Met Phe Ser  
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His Arg Asp Asp Glu Glu Tyr Ala Ser Asp Gly Ala Gly Asp Tyr  
355 360 365

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Glu Gly Lys Asp Ile Val His His Gly His Arg Gly Ser Ala Leu Ser  
385 390 395 400

Met Arg Arg Gln Ser Leu Leu Gly Glu Gly Gly Asp Gly Val Ser Ser  
405 410 415

Thr Asp Ile Gly Gly Trp Gln Leu Ala Trp Lys Trp Ser Glu Lys  
420 425 430

Glu Gly Glu Asn Gly Arg Lys Glu Gly Gly Phe Lys Arg Val Tyr Leu  
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His Gln Glu Gly Val Pro Gly Ser Arg Arg Gly Ser Ile Val Ser Leu  
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Pro Gly Gly Asp Val Leu Glu Gly Ser Glu Phe Val His Ala Ala  
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Ala Leu Val Ser Gln Ser Ala Leu Phe Ser Lys Gly Leu Ala Glu Pro  
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Arg Met Ser Asp Ala Ala Met Val His Pro Ser Glu Val Ala Ala Lys  
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Gly Ser Arg Trp Lys Asp Leu Phe Glu Pro Gly Val Arg Arg Ala Leu  
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Gly Val Leu Tyr Tyr Thr Pro Gln Ile Leu Glu Gln Ala Gly Val Ala  
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Val Ile Leu Ser Lys Phe Gly Leu Ser Ser Ala Ser Ala Ser Ile Leu  
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Met Leu Leu Met Asp Leu Ser Gly Arg Arg Phe Leu Leu Leu Gly Thr  
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Ile Pro Ile Leu Ile Ala Ser Leu Val Ile Leu Val Val Ser Asn Leu  
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Ile Tyr Ala Val Val Cys Leu Ile Ser Phe Val Phe Val Phe Leu Lys  
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His Leu Gly Val Pro Thr Ser Pro Ser Arg Phe Pro Ala Ala Ser Leu  
35 40 45

Leu Val Arg Gly Ser Glu Ile Ser Val Asp Glu Arg Leu Gly Gly Asn  
50 55 60

Xaa Ser Pro Ala Met Ala Gly Ala Val Leu Val Ala Ile Ala Ala Ser  
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Ile Gly Asn Leu Leu Gln Gly Trp Asp Asn Ala Thr Ile Ala Gly Ala  
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Val Leu Tyr Ile Lys Lys Glu Phe Asn Leu His Ser Asp Pro Leu Ile  
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Val Met Gly Phe Gly Pro Ile Pro Asn Ile Leu Cys Ala Glu Ile Phe  
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Pro Thr Thr Val Arg Gly Ile Cys Ile Ala Ile Cys Ala Leu Thr Phe  
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Trp Ile Gly Asp Ile Ile Val Thr Tyr Thr Leu Pro Val Met Leu Asn  
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Ala Ile Gly Leu Ala Gly Val Phe Gly Ile Tyr Ala Val Val Cys Ile  
85 90 95

Leu Ala Phe Leu Phe Val Phe Met Lys Val Pro Glu Thr Lys Gly Met  
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Lys Glu Asp  
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Lys Lys Asp Leu Ala Leu Gly Thr Thr Met Glu Arg Leu Val Val Gly  
 35 40 45

Met Ser Leu Ile Gly Ala Thr Val Ile Thr Thr Cys Ser Gly Pro Ile  
 50 55 60

Ala Asp Trp Leu Gly Arg Arg Pro Met Met Ile Ile Ser Ser Val Leu  
 65 70 75 80

Tyr Phe Leu Gly Gly Leu Val Met Leu Trp Ser Pro Asn Val Tyr Val  
 85 90 95

Leu Cys Leu Ala Arg Leu Leu Asp Gly Phe Gly Ile Gly Leu Ala Val  
 100 105 110

Thr Leu Val Pro Val Tyr Ile Ser Glu Thr Ala Pro Ser Glu Ile Arg  
 115 120 125

Gly Ser Leu Asn Thr Leu Pro Gln Phe Ser Gly Ser Gly Gly Met Phe  
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Leu Ser Tyr Cys Met Val Phe Gly Met Ser Leu Ser Pro Ala Pro Ser  
 145 150 155 160

Trp Arg Leu Met Leu Gly Val Leu Ser Ile Pro Ser Leu Leu Tyr Phe  
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Ala Leu Thr Ile Phe Phe Leu Pro Glu Ser Pro Arg Trp Leu Val Ser  
 180 185 190

Lys Gly Arg Met Leu Glu Ala Lys Lys Val Leu Gln Arg Leu Arg Gly  
 195 200 205

Arg Glu Asp Val Ser Gly Glu Met Ala Leu Leu Val Glu Gly Leu Gly  
 210 215 220

Ile Gly Gly Asp Thr Ser Ile Glu Glu Tyr Ile Ile Gly Pro Ala Asp  
 225 230 235 240

Asp Val Ala Asp Gly His Glu His Ala Thr Glu Lys Asp Lys Ile Arg  
 245 250 255

Leu Tyr Gly Ser Gln Ala Gly Leu Ser Trp Leu Ser Lys Pro Val Thr  
 260 265 270

Gly Gln Ser Ser Ile Gly Leu Ala Ser His His Gly Ser Ile Ile Asn  
 275 280 285

Gln Ser Met Pro Leu Met Asp Pro Leu Val Thr Leu Phe Gly Ser Ile  
 290 295 300  
 His Glu Lys Leu Pro Glu Thr Gly Ala Arg Gly Ser Met Arg Ser Thr  
 305 310 315 320  
 Leu Phe Pro Asn Phe Gly Ser Met Phe Ser Thr Ala Glu Pro His Ala  
 325 330 335  
 Lys Ile Glu Gln Trp Asp Glu Glu Ser Leu Gln Arg Glu Arg Glu Asp  
 340 345 350  
 Tyr Met Ser Asp Ala Thr Arg Gly Asp Ser Asp Asp Asn Leu His Ser  
 355 360 365  
 Pro Leu Ile Ser Arg Gln Thr Thr Ser Leu Glu Lys Asp Leu Pro Pro  
 370 375 380  
 Pro Pro Ser His Gly Ser Ile Leu Gly Ser Met Arg Arg His Ser Ser  
 385 390 395 400  
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 405 410 415  
 Gly Trp Gln Leu Ala Trp Lys Trp Thr Asp Lys Gly Glu Asp Gly Lys  
 420 425 430  
 Gln Gln Gly Phe Lys Arg Ile Tyr Leu His Glu Glu Gly Val Ser  
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 Ala Ser Arg Arg Gly Ser Ile Val Ser Ile Pro Gly Glu Gly Glu Phe  
 450 455 460  
 Val Gln Ala Ala Ala Leu Val Ser Gln Pro Ala Leu Tyr Ser Lys Glu  
 465 470 475 480  
 Leu Ile Asp Gly His Pro Val Gly Pro Ala Met Val His Pro Ser Glu  
 485 490 495  
 Thr Ala Ser Lys Gly Pro Ser Trp Lys Ala Leu Leu Glu Pro Gly Val  
 500 505 510  
 Lys His Ala Leu Val Val Gly Val Gly Ile Gln Ile Leu Gln Gln Phe  
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 Ser Gly Ile Asn Gly Val Leu Tyr Tyr Thr Pro Gln Ile Leu Glu Glu  
 530 535 540  
 Ala Gly Val Glu Val Leu Leu Ser Asp Ile Gly Ile Gly Ser Glu Ser  
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 Ala Ser Phe Leu Ile Ser Ala Phe Thr Thr Phe Leu Met Leu Pro Cys  
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 Ile Gly Val Ala Met Lys Leu Met Asp Val Ser Gly Arg Arg Gln Leu  
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 595 600 605

Ile Gly Ser Leu Val Asn Phe Gly Asn Val Ala His Ala Ala Ile Ser  
610 615 620

Thr Val Cys Val Val Val Tyr Phe Cys Cys Phe Val Met Gly Tyr Gly  
625 630 635 640

Pro Ile Pro Asn Ile Leu Cys Ser Glu Ile Phe Pro Thr Arg Val Arg  
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Gly Leu Cys Ile Ala Ile Cys Ala Leu Val Phe Trp Ile Gly Asp Ile  
660 665 670

Ile Ile Thr Tyr Ser Leu Pro Val Met Leu Gly Ser Leu Gly Leu Gly  
675 680 685

Gly Val Phe Ala Ile Tyr Ala Val Val Cys Phe Ile Ser Trp Ile Phe  
690 695 700

Val Phe Leu Lys Val Pro Glu Thr Lys Gly Met Pro Leu Glu Val Ile  
705 710 715 720

Ser Glu Phe Phe Ser Val Gly Ala Lys Gln Ala Ala Ser Ala Lys Asn  
725 730 735

Glu

<210> 9  
<211> 1692  
<212> DNA  
<213> Glycine max

<400> 9

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gaagcatggc aaatccaagc agtctagttgg accctctgt gaccctctt ggttagtgtac 180  
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ttgggggaaa tcagccaagg aatgaagatt gggatgagga aagcctagcc agagagggtg 300  
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gtgggtgttgc gcagctagca tggaaatggt ctgaaagaga gggcccagat gggaaagaagg 540  
aagggtggctt caagagaata tatttacacc aagatggtgg ttctggatct agacgtgggt 600  
ctgtggtttc actccctggc ggtgatttac caactgacag tgaggttgc caggctgctg 660  
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aacagtttga cttttttttttt cttttttttttt cttttttttttt 1500  
ggtaccccttctt aattttttttt aatctacggc ttgtttttttt ttgtttttttt 1560

tattttctat ttattctctc ttttccgtgg gttgagattg agaaacaaga aactttgttt 1620  
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<210> 10  
 <211> 486  
 <212> PRT  
 <213> Glycine max

<400> 10  
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Gly Gln Ser Trp Val Ala Arg Pro Val Ala Gly Pro Asn Ser Val Gly  
 20 25 30

Leu Val Ser Arg Lys Gly Ser Met Ala Asn Pro Ser Ser Leu Val Asp  
 35 40 45

Pro Leu Val Thr Leu Phe Gly Ser Val His Glu Lys Leu Pro Glu Thr  
 50 55 60

Gly Ser Thr Leu Phe Pro His Phe Gly Ser Met Phe Ser Val Gly Gly  
 65 70 75 80

Asn Gln Pro Arg Asn Glu Asp Trp Asp Glu Glu Ser Leu Ala Arg Glu  
 85 90 95

Gly Asp Asp Tyr Val Ser Asp Ala Gly Asp Ser Asp Asp Asn Leu Gln  
 100 105 110

Ser Pro Leu Ile Ser Arg Gln Thr Thr Ser Leu Asp Lys Asp Ile Pro  
 115 120 125

Pro His Ala His Ser Asn Leu Ala Ser Met Arg Gln Gly Ser Leu Leu  
 130 135 140

His Gly Asn Ser Gly Glu Pro Thr Gly Ser Thr Gly Ile Gly Gly Gly  
 145 150 155 160

Trp Gln Leu Ala Trp Lys Trp Ser Glu Arg Glu Gly Pro Asp Gly Lys  
 165 170 175

Lys Glu Gly Gly Phe Lys Arg Ile Tyr Leu His Gln Asp Gly Gly Ser  
 180 185 190

Gly Ser Arg Arg Gly Ser Val Val Ser Leu Pro Gly Gly Asp Leu Pro  
 195 200 205

Thr Asp Ser Glu Val Val Gln Ala Ala Ala Leu Val Ser Gln Pro Ala  
 210 215 220

Leu Tyr Asn Glu Asp Leu Met Arg Gln Arg Pro Val Gly Pro Ala Met  
 225 230 235 240

Ile His Pro Ser Glu Thr Ile Ala Lys Gly Pro Ser Trp Ser Asp Leu  
 245 250 255

Phe Glu Pro Gly Val Lys His Ala Leu Ile Val Gly Val Gly Met Gln  
 260 265 270

Ile	Leu	Gln	Gln	Phe	Ser	Gly	Ile	Asn	Gly	Val	Leu	Tyr	Tyr	Thr	Pro
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Gln	Ile	Leu	Glu	Gln	Ala	Gly	Val	Gly	Tyr	Leu	Leu	Ser	Ser	Leu	Gly
290							295				300				
Leu	Gly	Ser	Thr	Ser	Ser	Ser	Phe	Leu	Ile	Ser	Ala	Val	Thr	Thr	Leu
305							310			315			320		
Leu	Met	Leu	Pro	Cys	Ile	Ala	Ile	Ala	Met	Arg	Leu	Met	Asp	Ile	Ser
	325								330				335		
Gly	Arg	Arg	Thr	Leu	Leu	Leu	Ser	Thr	Ile	Pro	Val	Leu	Ile	Ala	Ala
	340							345					350		
Leu	Leu	Ile	Leu	Val	Leu	Gly	Ser	Leu	Val	Asp	Leu	Gly	Ser	Thr	Ala
	355						360					365			
Asn	Ala	Ser	Ile	Ser	Thr	Ile	Ser	Val	Ile	Val	Tyr	Phe	Cys	Phe	Phe
	370						375				380				
Val	Met	Gly	Phe	Gly	Pro	Ile	Pro	Asn	Ile	Leu	Cys	Ala	Glu	Ile	Phe
	385						390				395				400
Pro	Thr	Arg	Val	Arg	Gly	Leu	Cys	Ile	Ala	Ile	Cys	Ala	Leu	Thr	Phe
		405						410					415		
Trp	Ile	Cys	Asp	Ile	Ile	Val	Thr	Tyr	Thr	Leu	Pro	Val	Met	Leu	Asn
		420					425						430		
Ser	Val	Gly	Leu	Ala	Gly	Val	Phe	Gly	Ile	Tyr	Ala	Val	Val	Cys	Phe
		435					440						445		
Ile	Ala	Trp	Val	Phe	Val	Phe	Leu	Lys	Val	Pro	Glu	Thr	Lys	Gly	Met
		450					455					460			
Pro	Leu	Glu	Val	Ile	Ile	Glu	Phe	Phe	Ser	Val	Gly	Ala	Lys	Gln	Phe
	465						470				475				480
Asp	Asp	Ala	Lys	His	Asn										
					485										
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<212>	DNA														
<213>	Triticum aestivum														
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 gcttctccat ctcatctcct tgggtgggtc tctactagag aggcgcagct gcagggatcc 180  
 ttgggtggaga ggagggaaaga agatgtcggt tgctgcactg gtgcgcatttgc cggcttccat 240  
 tggcaatctg ctgcagggtt gggacaatgc caccatcgct ggtgcttgc tgcacatcaa 300  
 gaagggaaattt cagctcgaaa ataatccgac tggggggggg ctcatcggtt catgtcctca 360  
 tcgggtgcaa catcatcaca cattctccgg gccagttatca aactgggtt ccggggcccta 420  
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<210> 12  
 <211> 117  
 <212> PRT  
 <213> *Triticum aestivum*

<400> 12  
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 1 5 10 15

Arg Arg Leu Arg Ser Val Leu Ile Tyr Arg Thr Thr Pro Pro His His  
 20 25 30

Thr Arg Gly Leu Pro Leu Leu Gly Leu Leu His Leu Ile Ser Leu Val  
 35 40 45

Gly Ser Leu Leu Glu Arg Arg Ser Cys Arg Asp Pro Trp Trp Arg Gly  
 50 55 60

Gly Lys Lys Met Ser Gly Ala Ala Leu Val Ala Ile Ala Ala Ser Ile  
 65 70 75 80

Gly Asn Leu Leu Gln Gly Trp Asp Asn Ala Thr Ile Ala Gly Ala Val  
 85 90 95

Leu Tyr Ile Lys Lys Glu Phe Gln Leu Glu Asn Asn Pro Thr Val Glu  
 100 105 110

Gly Leu Ile Val Ala  
 115

<210> 13  
 <211> 1487

<212> DNA  
<213> Triticum aestivum

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gaatctactt gcaccaagag ggggtggccg actcaagaag gggctctgtt gtttcaactc 180  
ctggtggggg ttagtgcacg caagggggca gtgggttat acatgtctgct gctttggtaa 240  
gccactcggc tcttactcc aaggatcta tggaagagcg tatggcggcc ggtccagcca 300  
tgattcatcc attggaggca gctcccaaag gttcaatctg gaaagatctg tttgaacctg 360  
gtgtgaggcg tgcattgttc gtcgggtttt gaattcagat gcttcagcag tttgctggaa 420  
taaatggagt tctctactat actcctcaaa ttctggagca agctgggttg gctgttctc 480  
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tactcatgtc cccaaggcatt ggtgttagcca tgagacttat ggtatataat ggaagaaggt 600  
ttctgctact gggcacaatt cccatcttga tagcatccct aattgtttt ggtgtggta 660  
atgttatcaa cttgagtacg gtgcggccacg ctgtgcctc cacagttacg gtcattgtct 720  
acttctgtcg ctgtgtcatg ggcttggcc cgatccccaa cattctatgt gcagagattt 780  
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aaataaagaa aaagcatgtt tttttgtt tcaacttgc aactttctt taaaacattgt 1380  
gcaatgtatt gtaaaatttctt ttagtcaactt ccctcgattc agagagaagc acttgggtt 1440  
aagtcatgaa agattttctt cgacaaaaaa aaaaaaaaaa aaaaaaaaaa 1487

<210> 14  
<211> 345  
<212> PRT  
<213> Triticum aestivum

<400> 14  
Ser Trp Lys Glu Gly Gly Glu Ala Val Ser Ser Thr Gly Ile Gly Gly  
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Gly Trp Gln Leu Ala Trp Lys Trp Ser Glu Arg Gln Gly Glu Asp Gly  
20 25 30  
Lys Lys Glu Gly Gly Phe Lys Arg Ile Tyr Leu His Gln Glu Gly Val  
35 40 45  
Ala Asp Ser Arg Arg Gly Ser Val Val Ser Leu Pro Gly Gly Asp  
50 55 60  
Ala Thr Gln Gly Gly Ser Gly Phe Ile His Ala Ala Ala Leu Val Ser  
65 70 75 80  
His Ser Ala Leu Tyr Ser Lys Asp Leu Met Glu Glu Arg Met Ala Ala  
85 90 95  
Gly Pro Ala Met Ile His Pro Leu Glu Ala Ala Pro Lys Gly Ser Ile  
100 105 110  
Trp Lys Asp Leu Phe Glu Pro Gly Val Arg Arg Ala Leu Phe Val Gly  
115 120 125

Val Gly Ile Gln Met Leu Gln Gln Phe Ala Gly Ile Asn Gly Val Leu  
130 135 140

Tyr Tyr Thr Pro Gln Ile Leu Glu Gln Ala Gly Val Ala Val Leu Leu  
145 150 155 160

Ser Asn Leu Gly Leu Ser Ser Ala Ser Ala Ser Ile Leu Ile Ser Ser  
165 170 175

Leu Thr Thr Leu Leu Met Leu Pro Ser Ile Gly Val Ala Met Arg Leu  
180 185 190

Met Asp Ile Ser Gly Arg Arg Phe Leu Leu Leu Gly Thr Ile Pro Ile  
195 200 205

Leu Ile Ala Ser Leu Ile Val Leu Gly Val Val Asn Val Ile Asn Leu  
210 215 220

Ser Thr Val Pro His Ala Val Leu Ser Thr Val Ser Val Ile Val Tyr  
225 230 235 240

Phe Cys Cys Phe Val Met Gly Phe Gly Pro Ile Pro Asn Ile Leu Cys  
245 250 255

Ala Glu Ile Phe Pro Thr Arg Val Arg Gly Val Cys Ile Ala Ile Cys  
260 265 270

Ala Leu Thr Phe Trp Ile Cys Asp Ile Ile Val Thr Tyr Ser Leu Pro  
275 280 285

Val Met Leu Asn Ala Ile Gly Leu Ala Gly Val Phe Gly Ile Tyr Ala  
290 295 300

Val Val Cys Cys Ile Ala Phe Val Phe Val Tyr Leu Lys Val Pro Glu  
305 310 315 320

Thr Lys Gly Met Pro Leu Glu Val Ile Thr Glu Phe Phe Ala Val Gly  
325 330 335

Ala Lys Gln Ala Gln Ala Thr Ile Ala  
340 345

<210> 15

<211> 1009

<212> DNA

<213> Triticum aestivum

<400> 15

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ggttcttcta tcaaacattg gactaagctc ttccctcagca tctattctta ttagtgcctt 180  
gacaaccttg ctgatgcctc ccagcattgg catgccatg agactcatgg atatgtcagg 240  
aagaaggttt cttctccctt caacaatccc tgccttgata gtagcgctag ctgtcttggt 300  
tttagtgaat gttctggatg tcggaaccat ggtgcacgct ggcgtctcaa cgatcagcgt 360  
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gatcggcgcac atcatcgta catacactct ccccgatgatg ctcaatgcca ttggtctcgc 540  
tggagtcttc ggcataatatg ccatcgatgg tgcgtatgcc ttgttattcg tctacatgaa 600  
gttcccttag acaaaggcga tgccccctgga ggtcatcacc gagttcttct ctgtcggggc 660  
aaagcagggc aaggaagcca cggactagtt gtcgtatgcc ggtgtatccgc gtcgtcggtg 720

gtaattttgt ggtgtcataa ctactactac actggtaac ctgcgatgct ttggtaaga 780  
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 tcgattatgt gtttgcctaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1009

<210> 16  
 <211> 228  
 <212> PRT  
 <213> *Triticum aestivum*

<400> 16  
 Glu Pro Gly Val Lys His Ala Leu Phe Val Gly Ile Gly Leu Gln Ile  
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Leu Gln Gln Phe Ala Gly Ile Asn Gly Val Leu Tyr Tyr Thr Pro Gln  
 20 25 30

Ile Leu Glu Gln Ala Gly Val Gly Val Leu Leu Ser Asn Ile Gly Leu  
 35 40 45

Ser Ser Ser Ser Ala Ser Ile Leu Ile Ser Ala Leu Thr Thr Leu Leu  
 50 55 60

Met Leu Pro Ser Ile Gly Ile Ala Met Arg Leu Met Asp Met Ser Gly  
 65 70 75 80

Arg Arg Phe Leu Leu Ser Thr Ile Pro Val Leu Ile Val Ala Leu  
 85 90 95

Ala Val Leu Val Leu Val Asn Val Leu Asp Val Gly Thr Met Val His  
 100 105 110

Ala Ala Leu Ser Thr Ile Ser Val Ile Val Tyr Phe Cys Phe Phe Val  
 115 120 125

Met Gly Phe Gly Pro Ile Pro Asn Ile Leu Cys Ala Glu Ile Phe Pro  
 130 135 140

Thr Ser Val Arg Gly Ile Cys Ile Ala Ile Cys Ala Leu Thr Phe Trp  
 145 150 155 160

Ile Gly Asp Ile Ile Val Thr Tyr Thr Leu Pro Val Met Leu Asn Ala  
 165 170 175

Ile Gly Leu Ala Gly Val Phe Gly Ile Tyr Ala Ile Val Cys Val Leu  
 180 185 190

Ala Phe Val Phe Val Tyr Met Lys Val Pro Glu Thr Lys Gly Met Pro  
 195 200 205

Leu Glu Val Ile Thr Glu Phe Phe Ser Val Gly Ala Lys Gln Gly Lys  
 210 215 220

Glu Ala Thr Asp  
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<210> 17  
 <211> 615

<212> DNA  
<213> Zea mays

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<220>  
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<222> (602)

<400> 17  
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aggcaacgtc aagttcgccct tcgcctgcnc catcctcgcc tcaatgacct ccattccttct 180  
cggtatgtat atcggagtga tgagcgccgc gtcgttgatc atcaagaagg acctgaaaat 240  
cagcgacgtg aagctggaga tcctgatggg natcctcaac gtgtactcgc tcattcgctc 300  
gttngcggca gggcgacgt ccgactggat cggnccgcgt acaccatcg tttcgcnccg 360  
gtgatcttct tcgcggccgc ttcctcatgg gcttcgcgt gaactactgg atgctcatgt 420  
tcggcgctt cgtggccggg atcggcgatgg gctacgcgt catgatcgca accgtntaca 480  
cgcccgaaat gtcccccgcgt cggccgcgg cttcctgacg tcgttccgg aggtgttcat 540  
cacttcggca tcctcttaggt acgtgtcaat aaggctttc cgcttcgtt cgctggatng 600  
cnctaattgtc ggcatt 615

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<211> 167  
<212> PRT  
<213> Zea mays

<220>  
<221> UNSURE  
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<222> (85)

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Ala Ala Ile Glu Pro Gly Lys Lys Gly Asn Val Lys Phe Ala Phe Ala  
 20 25 30

Cys Xaa Ile Leu Ala Ser Met Thr Ser Ile Leu Leu Gly Tyr Asp Ile  
 35 40 45

Gly Val Met Ser Gly Ala Ser Leu Tyr Ile Lys Lys Asp Leu Lys Ile  
 50 55 60

Ser Asp Val Lys Leu Glu Ile Leu Met Gly Ile Leu Asn Val Tyr Ser  
 65 70 75 80

Leu Ile Gly Ser Xaa Ala Ala Gly Arg Thr Ser Asp Trp Ile Gly Arg  
 85 90 95

Arg Xaa Thr Ile Val Phe Ala Ala Val Ile Phe Phe Ala Gly Ala Xaa  
 100 105 110

Leu Met Gly Phe Ala Val Asn Tyr Trp Met Leu Met Phe Gly Arg Phe  
 115 120 125

Val Ala Gly Ile Gly Val Gly Tyr Ala Leu Met Ile Ala Thr Val Tyr  
 130 135 140

Thr Ala Glu Val Ser Pro Xaa Ser Ala Arg Gly Phe Leu Thr Ser Phe  
 145 150 155 160

Pro Glu Val Phe Ile Thr Ser  
 165

<210> 19  
 <211> 1914  
 <212> DNA  
 <213> Zea mays

<400> 19  
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 catatgtgcc atcctggcct ccatggcctc tgtcatcctt ggctatgaca ttgggggtat 180  
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 cctgtatcggtt atcctcagtc tctactcgct gttcgatcc ttgcgtggcg cgcggacgtc 300  
 cgacaggatc gggcgccgct tgaccgtcgt gttcgccgct gtcatcttct tcgtgggctc 360  
 gttgctcatg gtttcgccc tcaactacgg catgctcatg gcggccgct tcgtggccgg 420

agtcgggtgtg ggctacgggg gcatgatcgc gcccgtgtac acggccgaga tctcgctgc 480  
 ggcgtcccggt ggcttccctga ccacccccc ggaggggttca atcaacatcg gcatcctgct 540  
 tggctacctg tccaacttcg cgttcgcgcg cctcccgctc cacctcgctt ggcgcgtcat 600  
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 gtcgcctcgg tggctggctt tgaagggccg cctcgccggac gccagggctg tgctagagaa 720  
 gacctctgcc acgcacaggg aggccggca gggctggcc gacatcaagg cgcggcggg 780  
 gattccgaag ggcctcgacg gggacgtat caccgtaccc ggcaaggagc aaggccggg 840  
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 gtacagcgcc cgcctgttca agagcgcggg gatcaccgac gacaacaagg tcctggcg 1020  
 cacctgcgcg gtggcggtga ccaagacgtt cttcatctt gtggccacgt tcctgctgga 1080  
 cccgcggggg cgtccggctc tgctgtat cagcacgggc gggatgattt tctcgctcat 1140  
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<210> 20  
 <211> 513  
 <212> PRT  
 <213> Zea mays

<400> 20

Met Ala Ser Asp Glu Leu Ala Lys Ala Val Glu Pro Arg Lys Lys Gly  
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Asn Val Lys Tyr Ala Ser Ile Cys Ala Ile Leu Ala Ser Met Ala Ser  
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Val Ile Leu Gly Tyr Asp Ile Gly Val Met Ser Gly Ala Ala Met Tyr  
 35 40 45

Ile Lys Lys Asp Leu Asn Ile Thr Asp Val Gln Leu Glu Ile Leu Ile  
 50 55 60

Gly Ile Leu Ser Leu Tyr Ser Leu Phe Gly Ser Phe Ala Gly Ala Arg  
 65 70 75 80

Thr Ser Asp Arg Ile Gly Arg Arg Leu Thr Val Val Phe Ala Ala Val  
 85 90 95

Ile Phe Phe Val Gly Ser Leu Leu Met Gly Phe Ala Val Asn Tyr Gly  
 100 105 110

Met Leu Met Ala Gly Arg Phe Val Ala Gly Val Gly Val Gly Tyr Gly  
 115 120 125

Gly Met Ile Ala Pro Val Tyr Thr Ala Glu Ile Ser Pro Ala Ala Ser  
 130 135 140

Arg Gly Phe Leu Thr Thr Phe Pro Glu Val Phe Ile Asn Ile Gly Ile  
 145 150 155 160  
 Leu Leu Gly Tyr Leu Ser Asn Phe Ala Phe Ala Arg Leu Pro Leu His  
 165 170 175  
 Leu Gly Trp Arg Val Met Leu Ala Ile Gly Ala Val Pro Ser Gly Leu  
 180 185 190  
 Leu Ala Leu Leu Val Phe Cys Met Pro Glu Ser Pro Arg Trp Leu Val  
 195 200 205  
 Leu Lys Gly Arg Leu Ala Asp Ala Arg Ala Val Leu Glu Lys Thr Ser  
 210 215 220  
 Ala Thr Pro Glu Glu Ala Ala Glu Arg Leu Ala Asp Ile Lys Ala Ala  
 225 230 235 240  
 Ala Gly Ile Pro Lys Gly Leu Asp Gly Asp Val Val Thr Val Pro Gly  
 245 250 255  
 Lys Glu Gln Gly Gly Glu Leu Gln Val Trp Lys Lys Leu Ile Leu  
 260 265 270  
 Ser Pro Thr Pro Ala Val Arg Arg Ile Leu Leu Ser Ala Val Gly Leu  
 275 280 285  
 His Phe Phe Gln Gln Ala Ser Gly Ser Asp Ser Val Val Gln Tyr Ser  
 290 295 300  
 Ala Arg Leu Phe Lys Ser Ala Gly Ile Thr Asp Asp Asn Lys Leu Leu  
 305 310 315 320  
 Gly Val Thr Cys Ala Val Gly Val Thr Lys Thr Phe Phe Ile Leu Val  
 325 330 335  
 Ala Thr Phe Leu Leu Asp Arg Ala Gly Arg Arg Pro Leu Leu Ile  
 340 345 350  
 Ser Thr Gly Gly Met Ile Val Ser Leu Ile Cys Leu Gly Ser Gly Leu  
 355 360 365  
 Thr Val Ala Gly His His Pro Asp Thr Lys Val Ala Trp Ala Val Ala  
 370 375 380  
 Leu Cys Ile Ala Ser Thr Leu Ser Tyr Ile Ala Phe Phe Ser Ile Gly  
 385 390 395 400  
 Leu Gly Pro Ile Thr Gly Val Tyr Thr Ser Glu Ile Phe Pro Leu Gln  
 405 410 415  
 Val Arg Ala Leu Gly Phe Ala Val Gly Val Ala Ser Asn Arg Val Thr  
 420 425 430  
 Ser Ala Val Ile Ser Met Thr Phe Leu Ser Leu Ser Lys Ala Ile Thr  
 435 440 445  
 Ile Gly Gly Ser Phe Phe Leu Tyr Ser Gly Ile Ala Ala Val Ala Trp  
 450 455 460

Val	Phe	Phe	Phe	Thr	Cys	Leu	Pro	Glu	Thr	Arg	Gly	Arg	Thr	Leu	Glu
465															480
Glu	Met	Gly	Lys	Leu	Phe	Gly	Met	Pro	Asp	Thr	Gly	Met	Ala	Glu	Glu
															495
Ala	Glu	Asp	Ala	Ala	Ala	Lys	Glu	Lys	Val	Val	Glu	Leu	Pro	Ser	Ser
															510

Lys

<210> 21  
<211> 2017  
<212> DNA  
<213> Oryza sativa

<400> 21

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ccgtcgcc	gaagaagaag	ggcaacgtcc	ggttcgccct	cgcctgcgc	atcctcgcc	180
ccatgaccc	tc catcctc	ggctacgata	tcgggggtat	gagcggggcg	tcgcgttaca	240
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gcgtatgaaga	ataccagtat	gtacatggat	tgaggtgt	tgttagtact	agaagtgtca	1920
gtcacgtgt	tcttggtaaga	aatgtttaac	tgttaattaa	gcagtattgt	tgcagtaatc	1980
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<211> 510  
<212> PRT  
<213> Oryza sativa

<220>  
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<400> 22  
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Ile Leu Leu Gly Tyr Asp Ile Gly Val Met Ser Gly Ala Ser Leu Tyr  
 35 40 45

Ile Lys Lys Asp Phe Asn Ile Ser Asp Gly Lys Val Glu Val Leu Met  
 50 55 60

Gly Ile Leu Asn Leu Tyr Ser Leu Ile Gly Ser Phe Ala Ala Gly Arg  
 65 70 75 80

Thr Ser Asp Trp Ile Gly Arg Arg Tyr Thr Ile Val Phe Ala Ala Val  
 85 90 95

Ile Phe Phe Ala Gly Xaa Phe Leu Met Gly Phe Ala Val Asn Tyr Ala  
 100 105 110

Met Leu Met Phe Gly Arg Phe Val Ala Gly Ile Gly Val Gly Tyr Ala  
 115 120 125

Leu Met Ile Ala Pro Val Tyr Thr Ala Glu Val Ser Pro Ala Ser Ala  
 130 135 140

Arg Gly Phe Leu Thr Ser Phe Pro Glu Val Phe Ile Asn Phe Gly Ile  
 145 150 155 160

Leu Leu Gly Tyr Val Ser Asn Tyr Ala Phe Ser Arg Leu Pro Leu Asn  
 165 170 175

Leu Gly Trp Arg Ile Met Leu Gly Ile Gly Ala Ala Pro Ser Val Leu  
 180 185 190

Leu Ala Leu Met Val Leu Gly Met Pro Glu Ser Pro Arg Trp Leu Val  
 195 200 205

Met Lys Gly Arg Leu Ala Asp Ala Lys Val Val Leu Glu Lys Thr Ser  
 210 215 220

Asp Thr Ala Glu Glu Ala Ala Glu Arg Leu Ala Asp Ile Lys Ala Ala  
 225 230 235 240

Ala Gly Ile Pro Glu Glu Leu Asp Gly Asp Val Val Thr Val Pro Lys  
 245 250 255

Arg Gly Ser Gly Asn Glu Lys Arg Val Trp Lys Glu Leu Ile Leu Ser  
 260 265 270

Pro Thr Pro Ala Met Arg Arg Ile Leu Leu Ser Gly Ile Gly Ile His  
 275 280 285

Phe Phe Gln His Ala Leu Gly Ile His Ser Val Val Phe Tyr Ser Pro  
290 295 300

Leu Val Phe Lys Ser Pro Gly Leu Thr Asn Asp Lys His Phe Leu Gly  
305 310 315 320

Thr Thr Trp Pro Phe Gly Val Thr Lys Arg Leu Phe Ile Leu Leu Ala  
325 330 335

Thr Phe Phe Ile Asp Gly Val Gly Arg Arg Pro Leu Leu Leu Gly Ser  
340 345 350

Thr Gly Gly Ile Ile Leu Ser Leu Ile Gly Leu Gly Ala Gly Leu Thr  
355 360 365

Val Val Gly Gln His Pro Asp Ala Lys Ile Pro Trp Ala Ile Gly Leu  
370 375 380

Ser Ile Ala Ser Thr Leu Ala Tyr Val Ala Phe Phe Ser Ile Gly Leu  
385 390 395 400

Gly Pro Ile Thr Trp Val Tyr Ser Ser Glu Ile Phe Pro Leu Gln Val  
405 410 415

Arg Ala Leu Gly Cys Ser Leu Gly Val Ala Ala Asn Arg Val Thr Ser  
420 425 430

Gly Val Ile Ser Met Thr Phe Leu Ser Leu Ser Lys Ala Ile Thr Ile  
435 440 445

Gly Gly Ser Phe Phe Leu Tyr Ser Gly Ile Ala Ala Leu Ala Trp Val  
450 455 460

Phe Phe Tyr Thr Tyr Leu Pro Glu Thr Arg Gly Arg Thr Leu Glu Glu  
465 470 475 480

Met Ser Lys Leu Phe Gly Asp Thr Ala Ala Ser Glu Ser Asp Glu  
485 490 495

Pro Ala Lys Glu Lys Lys Val Glu Met Ala Ala Thr Asn  
500 505 510

<210> 23

<211> 1853

<212> DNA

<213> Glycine max

<400> 23

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gctagttgaa gctgcagaag ctcataagac acttcaggat ttcgatcctc caaagaagcg 240  
caaaaggaac aagtatgctt ttgcttgc tatgctggcc tccatgactt ccatcttgct 300  
tggttatgat attggagtga tgagtggagc agccatatac ataaaaaggg acctgaaagt 360  
ctcggacgag caaatcgaga tcctgctcg aatcatcaac ctatacttc tgataggctc 420  
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caccatcttc ttgtcgag cacttctcat gggttctcc cccaaattatt cctttctcat 540  
gtttggccgt ttcgatcgatc gcatggcat cggctacgccc ctatgatag ccccccgtcta 600  
caccggccgag gtctcccccgg cctcctctcg tggcttcctc acttccttcc ctgaggtatt 660  
tattaatgga gggatattaa ttggatacat atcaaactat gcattttcga agctgacact 720

aaagggtggga tggcgaatga tgcttggagt tggtgcaata ctttcggtag tcctaacagt 780  
aggagtgtg gcgcgtccgg agtccccaaag gtggcttgtg atgagggtgc gtttggaga 840  
ggcaagaaaa gtgcctaaca aaacctcaga cagcaaggaa gaggcccaac taaggctagc 900  
ggaaatcaa caagccgcag ggatccccaa gagttgcaac gacgacgtcg ttcaggtaaa 960  
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tcgtcacatc gtaatcgctg cccttggat tcacttcttc caacaacgt cggcgtaga 1080  
cgccgtcggt ttgtacagcc ccaggatctt cgaaaaggct gggattacaa acgacacgc 1140  
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gtttacgtt gaccgcgtgg gtcgtcgcc gttgttattt tctagtgtcg gcgcatgg 1260  
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aatgtggcc gttggatcga gcatagccat ggtgttggct tacgtggcca cggtctccat 1380  
cggtgcgggt cccatcacgt gggtctatag ttctgagatc ttcccggtga ggctgcggc 1440  
gcarggtgcg gccgcgggag ttgcgtgaa taggaccact agcgcgggtg tctcaatgac 1500  
ttttctgtcc ctcactagag ccatcactat tggtgagct ttcttccttt attgtggcat 1560  
tgctactgtt gggtgatat tcttttacac cgtcttgcct gagacccggg gaaaaacgct 1620  
cgaagacatg gaagggctt ttgttacttt taggtccaaa tccaacgcca gcaaggctgt 1680  
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aatgagtatt gggacatcca gtaatagtga agtaatttcg tgatttttt tttgttttt 1800  
actttttaga ctgttcttc aaatcaaaac gagaagttaa agtgaaaaaaa aaa 1853

<210> 24  
<211> 523  
<212> PRT  
<213> Glycine max

<400> 24

Met Thr Glu Gly Lys Leu Val Glu Ala Ala Glu Ala His Lys Thr Leu  
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Gln Asp Phe Asp Pro Pro Lys Lys Arg Lys Arg Asn Lys Tyr Ala Phe  
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Ala Cys Ala Met Leu Ala Ser Met Thr Ser Ile Leu Leu Gly Tyr Asp  
35 40 45

Ile Gly Val Met Ser Gly Ala Ala Ile Tyr Ile Lys Arg Asp Leu Lys  
50 55 60

Val Ser Asp Glu Gln Ile Glu Ile Leu Leu Gly Ile Ile Asn Leu Tyr  
65 70 75 80

Ser Leu Ile Gly Ser Cys Leu Ala Gly Arg Thr Ser Asp Trp Ile Gly  
85 90 95

Pro Arg Tyr Thr Ile Val Phe Ala Gly Thr Ile Phe Phe Val Gly Ala  
100 105 110

Leu Leu Met Gly Phe Ser Pro Asn Tyr Ser Phe Leu Met Phe Gly Arg  
115 120 125

Phe Val Ala Gly Ile Gly Ile Gly Tyr Ala Leu Met Ile Ala Pro Val  
130 135 140

Tyr Thr Ala Glu Val Ser Pro Ala Ser Ser Arg Gly Phe Leu Thr Ser  
145 150 155 160

Phe Pro Glu Val Phe Ile Asn Gly Gly Ile Leu Ile Gly Tyr Ile Ser  
165 170 175

Asn Tyr Ala Phe Ser Lys Leu Thr Leu Lys Val Gly Trp Arg Met Met  
 180 185 190  
 Leu Gly Val Gly Ala Ile Pro Ser Val Leu Leu Thr Val Gly Val Leu  
 195 200 205  
 Ala Met Pro Glu Ser Pro Arg Trp Leu Val Met Arg Gly Arg Leu Gly  
 210 215 220  
 Glu Ala Arg Lys Val Leu Asn Lys Thr Ser Asp Ser Lys Glu Glu Ala  
 225 230 235 240  
 Gln Leu Arg Leu Ala Glu Ile Lys Gln Ala Ala Gly Ile Pro Glu Ser  
 245 250 255  
 Cys Asn Asp Asp Val Val Gln Val Asn Lys Gln Ser Asn Gly Glu Gly  
 260 265 270  
 Val Trp Lys Glu Leu Phe Leu Tyr Pro Thr Pro Ala Ile Arg His Ile  
 275 280 285  
 Val Ile Ala Ala Leu Gly Ile His Phe Phe Gln Gln Ala Ser Gly Val  
 290 295 300  
 Asp Ala Val Val Leu Tyr Ser Pro Arg Ile Phe Glu Lys Ala Gly Ile  
 305 310 315 320  
 Thr Asn Asp Thr His Lys Leu Leu Ala Thr Val Ala Val Gly Phe Val  
 325 330 335  
 Lys Thr Val Phe Ile Leu Ala Ala Thr Phe Thr Leu Asp Arg Val Gly  
 340 345 350  
 Arg Arg Pro Leu Leu Leu Ser Ser Val Gly Gly Met Val Leu Ser Leu  
 355 360 365  
 Leu Thr Leu Ala Ile Ser Leu Thr Val Ile Asp His Ser Glu Arg Lys  
 370 375 380  
 Leu Met Trp Ala Val Gly Ser Ser Ile Ala Met Val Leu Ala Tyr Val  
 385 390 395 400  
 Ala Thr Phe Ser Ile Gly Ala Gly Pro Ile Thr Trp Val Tyr Ser Ser  
 405 410 415  
 Glu Ile Phe Pro Leu Arg Leu Arg Ala Gln Gly Ala Ala Gly Val  
 420 425 430  
 Ala Val Asn Arg Thr Thr Ser Ala Val Val Ser Met Thr Phe Leu Ser  
 435 440 445  
 Leu Thr Arg Ala Ile Thr Ile Gly Gly Ala Phe Phe Leu Tyr Cys Gly  
 450 455 460  
 Ile Ala Thr Val Gly Trp Ile Phe Phe Tyr Thr Val Leu Pro Glu Thr  
 465 470 475 480  
 Arg Gly Lys Thr Leu Glu Asp Met Glu Gly Ser Phe Gly Thr Phe Arg  
 485 490 495

Ser Lys Ser Asn Ala Ser Lys Ala Val Glu Asn Glu Asn Gly Gln Val  
500 505 510

Ala Gln Val Gln Leu Gly Thr Asn Val Gln Thr  
515 520

<210> 25

<211> 2089

<212> DNA

<213> *Triticum aestivum*

<400> 25

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gggcaacgtg aggttcgcct tcgcctgcgc catcctcgcc tccatgaccc ccatcctcct 180  
cggtacgac atcggcgtga tgagcggacg gtgcgtgtac atccagaagg atctgaagat 240  
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atattaagta tgtgtattgt aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2089

<210> 26

<211> 539

<212> PRT

<213> *Triticum aestivum*

<400> 26

Ala Pro Leu Asn Tyr Thr Gln Gly Gly Pro Arg Arg His Asn Pro Gln  
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Ala Ala Ser Arg Gly Ala Ser Ser Thr Met Asp Arg Ala Ala Leu Pro  
20 25 30

Ala Ala Val Glu Pro Lys Lys Gly Asn Val Arg Phe Ala Phe Ala  
 35 40 45  
 Cys Ala Ile Leu Ala Ser Met Thr Ser Ile Leu Leu Gly Tyr Asp Ile  
 50 55 60  
 Gly Val Met Ser Gly Ala Ser Leu Tyr Ile Gln Lys Asp Leu Lys Ile  
 65 70 75 80  
 Asn Asp Thr Gln Leu Glu Val Leu Met Gly Ile Leu Asn Val Tyr Ser  
 85 90 95  
 Leu Ile Gly Ser Phe Ala Ala Gly Arg Thr Ser Asp Trp Ile Gly Arg  
 100 105 110  
 Arg Phe Thr Ile Val Phe Ala Ala Val Ile Phe Phe Ala Gly Ala Leu  
 115 120 125  
 Ile Met Gly Phe Ser Val Asn Tyr Ala Met Leu Met Phe Gly Arg Phe  
 130 135 140  
 Val Ala Gly Ile Gly Val Gly Tyr Ala Leu Met Ile Ala Pro Val Asn  
 145 150 155 160  
 Thr Gly Glu Val Ser Pro Ala Ser Ala Arg Gly Val Leu Thr Ser Phe  
 165 170 175  
 Pro Glu Val Phe Ile Asn Phe Gly Ile Leu Leu Gly Tyr Val Ser Asn  
 180 185 190  
 Phe Ala Phe Ala Arg Leu Ser Leu Arg Leu Gly Trp Arg Ile Met Leu  
 195 200 205  
 Gly Ile Gly Ala Val Pro Ser Val Leu Leu Ala Phe Met Val Leu Gly  
 210 215 220  
 Met Pro Glu Ser Pro Arg Trp Leu Val Met Lys Gly Arg Leu Ala Asp  
 225 230 235 240  
 Ala Lys Val Val Leu Ala Lys Thr Ser Asp Thr Pro Glu Glu Ala Ala  
 245 250 255  
 Glu Arg Ile Ala Asp Ile Lys Thr Ala Ala Gly Ile Pro Leu Gly Leu  
 260 265 270  
 Asp Gly Asp Val Val Pro Val Pro Lys Asn Lys Gly Ser Ser Glu Glu  
 275 280 285  
 Lys Arg Val Leu Lys Asp Leu Ile Leu Ser Pro Thr Ile Ala Met Arg  
 290 295 300  
 His Ile Leu Ile Ala Gly Ile Gly Ile His Phe Phe Gln Gln Ser Ser  
 305 310 315 320  
 Gly Ile Asp Ala Val Val Leu Tyr Ser Pro Leu Val Phe Lys Ser Ala  
 325 330 335  
 Gly Ile Thr Gly Asp Ser Arg Leu Arg Gly Thr Thr Val Ala Val Gly  
 340 345 350

Ala Thr Asn Thr Val Phe Ile Leu Val Ala Thr Phe Leu Leu Asp Arg  
355 360 365

Ile Arg Arg Arg Pro Leu Val Leu Thr Ser Thr Gly Gly Met Leu Val  
370 375 380

Ser Leu Val Gly Leu Ala Thr Gly Leu Thr Val Ile Ser Arg His Pro  
385 390 395 400

Asp Glu Lys Ile Thr Trp Ala Ile Val Leu Cys Ile Phe Cys Ile Met  
405 410 415

Ala Tyr Val Ala Phe Phe Ser Ile Gly Leu Gly Pro Ile Thr Trp Val  
420 425 430

Tyr Ser Ser Glu Ile Phe Pro Leu His Val Arg Ala Leu Gly Cys Ser  
435 440 445

Leu Gly Val Ala Val Asn Arg Leu Thr Ser Gly Val Ile Ser Met Thr  
450 455 460

Phe Ile Ser Leu Ser Lys Ala Met Thr Ile Gly Gly Ala Phe Phe Leu  
465 470 475 480

Phe Ala Gly Ile Ala Ser Phe Ala Trp Val Phe Phe Phe Ala Tyr Leu  
485 490 495

Pro Glu Thr Arg Gly Arg Thr Leu Glu Asp Met Ser Ser Leu Phe Gly  
500 505 510

Asn Thr Ala Thr His Lys Gln Gly Ala Ala Glu Ala Asp Asp Asp Ala  
515 520 525

Gly Glu Lys Lys Val Glu Met Ala Ala Thr Asn  
530 535

<210> 27

<211> 1872

<212> DNA

<213> Triticum aestivum

<400> 27

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 35 40 45  
 Ser Met Ala Thr Ile Val Leu Gly Tyr Asp Val Gly Val Met Ser Gly  
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 Ala Ser Leu Tyr Ile Lys Arg Asp Leu Gln Ile Thr Asp Val Gln Leu  
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 Glu Ile Met Met Gly Ile Leu Ser Val Tyr Ala Leu Ile Gly Ser Phe  
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 Leu Gly Ala Arg Thr Ser Asp Trp Val Gly Arg Arg Val Thr Val Val  
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 130 135 140  
 Val Gly Tyr Ala Ile Met Val Ala Pro Val Tyr Thr Pro Glu Val Ser  
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 Asn Val Gly Ile Leu Leu Gly Tyr Val Ser Asn Tyr Ala Phe Ala Arg  
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Pro Ser Ala Leu Leu Ala Leu Met Val Phe Gly Met Pro Glu Ser Pro  
 210 215 220  
 Arg Trp Leu Val Met Lys Gly Arg Leu Ala Asp Ala Arg Ala Val Leu  
 225 230 235 240  
 Ala Lys Thr Ser Asp Thr Pro Glu Glu Ala Val Glu Arg Leu Asp Gln  
 245 250 255  
 Ile Lys Ala Ala Ala Gly Ile Pro Arg Glu Leu Asp Gly Asp Val Val  
 260 265 270  
 Val Met Pro Lys Thr Lys Gly Gly Gln Glu Lys Gln Val Trp Lys Glu  
 275 280 285  
 Leu Ile Phe Ser Pro Thr Pro Ala Met Arg Arg Ile Leu Leu Ala Ala  
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 305 310 315 320  
 Leu Tyr Ser Pro Arg Val Phe Gln Ser Ala Gly Ile Thr Gly Asp Asn  
 325 330 335  
 His Leu Leu Gly Ala Thr Cys Ala Met Gly Val Met Lys Thr Leu Phe  
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 370 375 380  
 Thr Gly Leu Thr Val Val Gly Arg His Pro Asp Ala Lys Val Pro Trp  
 385 390 395 400  
 Ala Ile Gly Leu Cys Ile Val Ser Ile Leu Ala Tyr Val Ser Phe Phe  
 405 410 415  
 Ser Ile Gly Leu Gly Pro Leu Thr Ser Val Tyr Thr Ser Glu Val Phe  
 420 425 430  
 Pro Leu Arg Val Arg Ala Leu Gly Phe Ala Leu Gly Thr Ser Cys Asn  
 435 440 445  
 Arg Val Thr Ser Ala Ala Val Ser Met Ser Phe Leu Ser Leu Ser Lys  
 450 455 460  
 Ala Ile Thr Ile Gly Gly Ser Phe Phe Leu Tyr Ala Gly Ile Ala Ala  
 465 470 475 480  
 Ile Gly Trp Ile Phe Phe Phe Thr Phe Ile Pro Glu Thr Arg Gly Leu  
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 Pro Leu Glu Glu Ile Gly Lys Leu Phe Gly Met Thr Asp Thr Ala Val  
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Lys Lys Glu Phe Asn Leu Glu Ser Asn Pro Ser Val Glu Gly Leu Ile  
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Val Ala Met Ser Leu Ile Gly Ala Thr Leu Ile Thr Thr Cys Ser Gly  
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Gly Val Ala Asp Trp Leu Gly Arg Arg Pro Met Leu Ile Leu Ser Ser  
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Ile Leu Tyr Phe Val Gly Ser Leu Val Met Leu Trp Ser Pro Asn Val  
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Tyr Val Leu Leu Leu Gly Arg Leu Leu Asp Gly Phe Gly Val Gly Leu  
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Val Val Thr Leu Val Pro Ile Tyr Ile Ser Glu Thr Ala Pro Pro Glu  
115 120 125

Ile Arg Gly Leu Leu Asn Thr Leu Pro Gln Phe Thr Gly Ser Gly Gly  
130 135 140

Met Phe Leu Ser Tyr Cys Met Val Phe Gly Met Ser Leu Met Pro Ser  
145 150 155 160

Pro Ser Trp Arg Leu Met Leu Gly Val Leu Phe Ile Pro Ser Leu Val  
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Phe Phe Phe Leu Thr Val Phe Phe Leu Pro Glu Ser Pro Arg Trp Leu  
180 185 190

Val Ser Lys Gly Arg Met Leu Glu Ala Lys Arg Val Leu Gln Arg Leu  
195 200 205

Arg Gly Arg Glu Asp Val Ser Gly Glu Met Ala Leu Leu Val Glu Gly  
210 215 220

Leu Gly Ile Gly Gly Glu Thr Thr Ile Glu Glu Tyr Ile Ile Gly Pro  
225 230 235 240

Ala Asp Glu Val Thr Asp Asp His Asp Ile Ala Val Asp Lys Asp Gln  
245 250 255

Ile Lys Leu Tyr Gly Ala Glu Glu Gly Leu Ser Trp Val Ala Arg Pro  
 260 265 270  
 Val Lys Gly Gly Ser Thr Met Ser Val Leu Ser Arg His Gly Ser Thr  
 275 280 285  
 Met Ser Arg Arg Gln Gly Ser Leu Ile Asp Pro Leu Val Thr Leu Phe  
 290 295 300  
 Gly Ser Val His Glu Lys Met Pro Asp Thr Gly Ser Met Arg Ser Ala  
 305 310 315 320  
 Leu Phe Pro His Phe Gly Ser Met Phe Ser Val Gly Gly Asn Gln Pro  
 325 330 335  
 Arg His Glu Asp Trp Asp Glu Glu Asn Leu Val Gly Glu Gly Asp  
 340 345 350  
 Tyr Pro Ser Asp His Gly Asp Asp Ser Glu Asp Asp Leu His Ser Pro  
 355 360 365  
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 370 375 380  
 Ala His Gly Thr Leu Ser Thr Phe Arg His Gly Ser Gln Val Gln Gly  
 385 390 395 400  
 Ala Gln Gly Glu Gly Ala Gly Ser Met Gly Ile Gly Gly Trp Gln  
 405 410 415  
 Val Ala Trp Lys Trp Thr Glu Arg Glu Asp Glu Ser Gly Gln Lys Glu  
 420 425 430  
 Glu Gly Phe Pro Gly Ser Arg Arg Gly Ser Ile Val Ser Leu Pro Gly  
 435 440 445  
 Gly Asp Gly Thr Gly Glu Ala Asp Phe Val Gln Ala Ser Ala Leu Val  
 450 455 460  
 Ser Gln Pro Ala Leu Tyr Ser Lys Asp Leu Leu Lys Glu His Thr Ile  
 465 470 475 480  
 Gly Pro Ala Met Val His Pro Ser Glu Thr Thr Lys Gly Ser Ile Trp  
 485 490 495  
 His Asp Leu His Asp Pro Gly Val Lys Arg Ala Leu Val Val Gly Val  
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 Gly Leu Gln Ile Leu Gln Gln Phe Ser Gly Ile Asn Gly Val Leu Tyr  
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 Tyr Thr Pro Gln Ile Leu Glu Gln Ala Gly Val Gly Ile Leu Leu Ser  
 530 535 540  
 Asn Met Gly Ile Ser Ser Ser Ser Ala Ser Leu Leu Ile Ser Ala Leu  
 545 550 555 560  
 Thr Thr Phe Val Met Leu Pro Ala Ile Ala Val Ala Met Arg Leu Met  
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Asp Leu Ser Gly Arg Arg Thr Leu Leu Leu Thr Thr Ile Pro Ile Leu  
 580 585 590  
 Ile Ala Ser Leu Leu Val Leu Val Ile Ser Asn Leu Val His Met Asn  
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 Ser Ile Val His Ala Val Leu Ser Thr Val Ser Val Val Leu Tyr Phe  
 610 615 620  
 Cys Phe Phe Val Met Gly Phe Gly Pro Ala Pro Asn Ile Leu Cys Ser  
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 Glu Ile Phe Pro Thr Arg Val Arg Gly Ile Cys Ile Ala Ile Cys Ala  
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 Leu Thr Phe Trp Ile Cys Asp Ile Ile Val Thr Tyr Ser Leu Pro Val  
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 Val Cys Cys Ile Ser Trp Val Phe Val Phe Ile Lys Val Pro Glu Thr  
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 35 40 45  
 Val Leu Leu Gly Tyr Asp Ile Gly Val Met Ser Gly Ala Ile Ile Tyr  
 50 55 60  
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 Gly Ile Leu Asn Ile Tyr Cys Leu Phe Gly Ser Phe Ala Ala Gly Arg  
 85 90 95  
 Thr Ser Asp Trp Ile Gly Arg Arg Tyr Thr Ile Val Leu Ala Gly Ala  
 100 105 110  
 Ile Phe Phe Val Gly Ala Leu Leu Met Gly Phe Ala Thr Asn Tyr Ala  
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Phe Leu Met Val Gly Arg Phe Val Thr Gly Ile Gly Val Gly Tyr Ala  
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 Arg Gly Phe Leu Thr Ser Phe Pro Glu Val Phe Ile Asn Ala Gly Ile  
 165 170 175  
 Leu Leu Gly Tyr Ile Ser Asn Leu Ala Phe Ser Ser Leu Pro Thr His  
 180 185 190  
 Leu Ser Trp Arg Phe Met Leu Gly Ile Gly Ala Ile Pro Ser Ile Phe  
 195 200 205  
 Leu Ala Ile Gly Val Leu Ala Met Pro Glu Ser Pro Arg Trp Leu Val  
 210 215 220  
 Met Gln Gly Arg Leu Gly Asp Ala Lys Lys Val Leu Asn Arg Ile Ser  
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 Asp Ser Pro Glu Glu Ala Gln Leu Arg Leu Ser Glu Ile Lys Gln Thr  
 245 250 255  
 Ala Gly Ile Pro Ala Glu Cys Asp Glu Asp Ile Tyr Lys Val Glu Lys  
 260 265 270  
 Thr Lys Ile Lys Ser Gly Asn Ala Val Trp Lys Glu Leu Phe Phe Asn  
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 Pro Thr Pro Ala Val Arg Arg Ala Val Ile Ala Gly Ile Gly Ile His  
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 Phe Phe Gln Gln Ala Ser Gly Ile Asp Ala Val Val Leu Tyr Ser Pro  
 305 310 315 320  
 Arg Ile Phe Gln Ser Ala Gly Ile Thr Asn Ala Arg Lys Gln Leu Leu  
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 Ala Thr Val Ala Val Gly Val Val Lys Thr Leu Phe Ile Leu Val Ala  
 340 345 350  
 Thr Phe Gln Leu Asp Lys Tyr Gly Arg Arg Pro Leu Leu Leu Thr Ser  
 355 360 365  
 Val Gly Gly Met Ile Ile Ala Ile Leu Thr Leu Ala Met Ser Leu Thr  
 370 375 380  
 Val Ile Asp His Ser His His Lys Ile Thr Trp Ala Ile Ala Leu Cys  
 385 390 395 400  
 Ile Thr Met Val Cys Ala Val Val Ala Ser Phe Ser Ile Gly Leu Gly  
 405 410 415  
 Pro Ile Thr Trp Val Tyr Ser Ser Glu Val Phe Pro Leu Arg Leu Arg  
 420 425 430  
 Ala Gln Gly Thr Ser Met Gly Val Ala Val Asn Arg Val Val Ser Gly  
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Val Ile Ser Ile Phe Phe Leu Pro Leu Ser His Lys Ile Thr Thr Gly  
 450 455 460  
 Gly Ala Phe Phe Leu Phe Gly Gly Ile Ala Ile Ile Ala Trp Phe Phe  
 465 470 475 480  
 Phe Leu Thr Phe Leu Pro Glu Thr Arg Gly Arg Thr Leu Glu Asn Met  
 485 490 495  
 His Glu Leu Phe Glu Asp Phe Arg Trp Arg Glu Ser Phe Pro Gly Asn  
 500 505 510  
 Lys Ser Asn Asn Asp Glu Asn Ser Thr Arg Lys Gln Ser Asn Gly Asn  
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<212> PRT

<213> Zea mays

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Asp Asp Ile Leu Glu Asp Lys Met Ser Gly Ala Val Leu Val Ala Ile  
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Val Ala Ser Ile Gly Asn Leu Leu Gln Gly Trp Asp Asn Ala Thr Ile  
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Ala Ala Ala Val Leu Tyr Ile Lys Lys Glu Phe Gln Leu Gln Asn Glu  
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Pro Thr Val Glu Gly Leu Ile Val Ser Met Ser Leu Ile Gly Ala Thr  
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Ile Val Thr Thr Phe Ser Gly Pro Leu Ser Asp Ser Ile Gly Arg Arg  
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Pro Met Leu Ile Leu Ser Ser Ile Leu Tyr Phe Phe Ser Gly Leu Ile  
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Met Leu Trp Ser Pro Asn Val Tyr Val Leu Leu Ala Arg Phe Val  
 145 150 155 160

Asp Gly Phe Gly Ile Gly Leu Ala Val Thr Leu Val Pro Leu Tyr Ile  
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Ser Glu Ile Ala Pro Ser Glu Ile Arg Gly Leu Leu Asn Thr Leu Pro  
 180 185 190

Gln Phe Ser Gly Ser Gly Gly Met Phe Leu Ser Tyr Cys Met Val Phe  
 195 200 205  
 Gly Met Ser Leu Ser Pro Ser Pro Asp Trp Arg Ile Met Leu Gly Val  
 210 215 220  
 Leu Ala Ile Pro Ser Leu Phe Phe Gly Leu Thr Ile Phe Tyr Leu  
 225 230 235 240  
 Pro Glu Ser Pro Arg Trp Leu Val Ser Lys Gly Arg Met Ala Glu Ala  
 245 250 255  
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 260 265 270  
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 275 280 285  
 Glu Glu Tyr Ile Ile Gly Pro Ala Thr Glu Ala Ala Asp Asp Leu Val  
 290 295 300  
 Thr Asp Gly Asp Lys Glu Gln Ile Thr Leu Tyr Gly Pro Glu Glu Gly  
 305 310 315 320  
 Gln Ser Trp Ile Ala Arg Pro Ser Lys Gly Pro Ile Met Leu Gly Ser  
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 Val Leu Ser Leu Ala Ser Arg His Gly Ser Met Val Asn Gln Ser Val  
 340 345 350  
 Pro Leu Met Asp Pro Ile Val Thr Leu Phe Gly Ser Val His Glu Asn  
 355 360 365  
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 370 375 380  
 Gly Ser Met Phe Ser Val Thr Asp Gln His Ala Lys Asn Glu Gln Trp  
 385 390 395 400  
 Asp Glu Glu Asn Leu His Arg Asp Asp Glu Glu Tyr Ala Ser Asp Gly  
 405 410 415  
 Ala Gly Gly Asp Tyr Glu Asp Asn Leu His Ser Pro Leu Leu Ser Arg  
 420 425 430  
 Gln Ala Thr Gly Ala Glu Gly Lys Asp Ile Val His His Gly His Arg  
 435 440 445  
 Gly Ser Ala Leu Ser Met Arg Arg Gln Thr Leu Leu Gly Glu Gly Gly  
 450 455 460  
 Asp Gly Val Ser Ser Thr Asp Ile Gly Gly Trp Gln Leu Ala Trp  
 465 470 475 480  
 Lys Trp Ser Glu Lys Glu Gly Glu Asn Gly Arg Lys Glu Gly Gly Phe  
 485 490 495  
 Lys Arg Val Tyr Leu His Gln Glu Gly Val Pro Gly Ser Arg Arg Gly  
 500 505 510

Ser Ile Val Ser Leu Pro Gly Gly Gly Asp Val Phe Glu Gly Ser Glu  
 515 520 525  
 Phe Val His Ala Ala Ala Leu Val Ser Gln Ser Ala Leu Phe Ser Lys  
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 Gly Leu Ala Glu Pro Arg Met Ser Asp Ala Ala Met Val His Pro Ser  
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 Glu Val Ala Ala Lys Gly Ser Arg Trp Lys Asp Leu Phe Glu Pro Gly  
 565 570 575  
 Val Arg Arg Ala Leu Leu Val Gly Val Gly Ile Gln Ile Leu Gln Gln  
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 Phe Ala Gly Ile Asn Gly Val Leu Tyr Tyr Thr Pro Gln Ile Leu Glu  
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 Gln Ala Gly Val Ala Val Ile Leu Ser Lys Phe Gly Leu Ser Ser Ala  
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 Cys Ile Gly Phe Ala Met Leu Leu Met Asp Leu Ser Gly Arg Arg Phe  
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 Val Val Ser Asn Leu Ile Asp Leu Gly Thr Leu Ala His Ala Leu Leu  
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 Ser Thr Val Ser Val Ile Val Tyr Phe Cys Cys Phe Val Met Gly Phe  
 690 695 700  
 Gly Pro Ile Pro Asn Ile Leu Cys Ala Glu Ile Phe Pro Thr Arg Val  
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 Arg Gly Leu Cys Ile Ala Ile Cys Ala Phe Thr Phe Trp Ile Gly Asp  
 725 730 735  
 Ile Ile Val Thr Tyr Ser Leu Pro Val Met Leu Asn Ala Ile Gly Leu  
 740 745 750  
 Ala Gly Val Phe Ser Ile Tyr Ala Val Val Cys Leu Ile Ser Phe Val  
 755 760 765  
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ggcgttgcctt	gtttgggggc	tattctgttt	ggttaccatc	ttgggtgtgtt	caatggcgca	480
cttgaatatac	tcgcgaagga	tcttgggatt	gctgaaaatg	ctgtcttgc	gggggtgggtg	540
gttagcacat	ccttggctgg	tgcaacacta	ggttcttttta	ctgggggttc	tttggcagat	600
aaatttgggc	ggacaagaac	attcatcctg	gatcagtc	cacttgcct	aggtgcattc	660
ttgagtgc	aaagctcaaga	tatccgcaca	atgattatttgc	gcgcattgtc	tgttggaaatt	720
gttatcgccgg	tctcatctgc	tcttgcaccc	ctttacatat	ctgagatctc	accaactgaa	780
attcgtggaa	caactggta	cgttaatcaa	cttttattt	gcattggaaat	tcttgcagct	840
ttgttagctg	gattgcctct	ggcagggaaat	cctgcctgtt	ggaggacaat	gtttggaaatt	900
gctgttagttc	catccattct	gctggctgtt	ggaatggct	tttcgcctga	aaggccctgt	960
tggctattcc	agcaaggaaa	ggttactcaa	gcagaattag	ctgtaaaaaa	actgtatgg	1020
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tccgaagccg	gctgggttgc	tcttttcagc	aagcgttact	ggaaagtgtt	gagtgtgggg	1140
gcagcactgt	ttttgttcca	gcagctgtt	ggtataaaacg	ctgttgcata	ttactctaca	1200
tcgggtttcc	gtatgtcagg	cattgcattt	gatgttgcgt	ctagtgcct	tgttggagca	1260
gcctatgttt	ttggtactat	ggttgcattt	tctctaatgg	acaaacaagg	aaggaaaagc	1320
cttctgataa	caagcttttgc	tggaatgggt	gcttcataatgc	tactcctagc	attgtccttc	1380
acctggaaag	ctctggcacc	ttattctgtt	actcttgcgt	ttgttggcac	tgttctgtac	1440
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accaaggggaa	gatcacttgc	agagattgaa	aggagctaa	gtgttagcaga	atgtatgtact	1740
tttgcgtatgc	atgcgtggc	gccgttttgc	ttatcgagaa	tgcaaccaag	cgctcaaccg	1800
agcatccttgc	gacctggaga	ctctttctag	tttcatgttgc	tttttagaaat	aagcgaacgg	1860
caagagtagacc	aatcttaggt	gacttgggtt	gggttgcgtc	tgaataaagt	gaattggatt	1920
gtagaatttgc	agaaataaagt	gaattggatt	gtagaatttgc	aaaaagttgtt	ttccccttaa	1980
aaaaaaaaaaaa	aaaaaaaaaaa	aaaaaaaaaaa	aaaaaaaaaaa	aaaaaaaaaaa	aaaaaaaaaaa	2040
aaaaaaaaaaaa	aaaaaaaaaaa	aaaaaaaaaaa	aaaaaaa			2063

<210> 34

<211> 571

<212> PRT

<213> Zea mays

<400> 34

Asn Leu Leu Leu Leu Ile Phe Gly Pro Phe His Phe Ile Arg Cys Thr

1

5

10

15

Arg Arg Cys Arg Cys Gln His Gly Thr Ile Thr Thr Val Ile Lys Lys

20

25

30

Met Met Arg Cys Ala Ala Thr Gly Gly Cys Val Ala Ser Trp Ser

35

40

45

Gly Asp Arg Arg Leu Pro Ala Val Asn Pro Cys Ser Val Arg Met Pro

50

55

60

Thr Gly Asn Asp Gly Trp Cys Ala Gly Leu Arg Ser Arg Ala Ala Asp

65

70

75

80

Leu Ala Gly Leu Glu Met Ala Asn Leu Arg Gly Gly Val Gly Gly Leu  
 85 90 95  
 Phe Arg Ala Ser Pro Arg Tyr Gly Arg Leu Gln Ala Thr Ala Ala Val  
 100 105 110  
 Asp Pro Glu Asp Ile Pro Leu Glu Lys Val Gln Val Lys Ser Ser Gly  
 115 120 125  
 His Val Leu Pro Tyr Val Gly Val Ala Cys Leu Gly Ala Ile Leu Phe  
 130 135 140  
 Gly Tyr His Leu Gly Val Val Asn Gly Ala Leu Glu Tyr Leu Ala Lys  
 145 150 155 160  
 Asp Leu Gly Ile Ala Glu Asn Ala Val Leu Gln Gly Trp Val Val Ser  
 165 170 175  
 Thr Ser Leu Ala Gly Ala Thr Leu Gly Ser Phe Thr Gly Gly Ser Leu  
 180 185 190  
 Ala Asp Lys Phe Gly Arg Thr Arg Thr Phe Ile Leu Asp Ala Val Pro  
 195 200 205  
 Leu Ala Leu Gly Ala Phe Leu Ser Ala Thr Ala Gln Asp Ile Arg Thr  
 210 215 220  
 Met Ile Ile Gly Arg Leu Leu Ala Gly Ile Gly Ile Gly Val Ser Ser  
 225 230 235 240  
 Ala Leu Val Pro Leu Tyr Ile Ser Glu Ile Ser Pro Thr Glu Ile Arg  
 245 250 255  
 Gly Thr Leu Gly Thr Val Asn Gln Leu Phe Ile Cys Ile Gly Ile Leu  
 260 265 270  
 Ala Ala Leu Leu Ala Gly Leu Pro Leu Ala Gly Asn Pro Ala Trp Trp  
 275 280 285  
 Arg Thr Met Phe Gly Ile Ala Val Val Pro Ser Ile Leu Leu Ala Val  
 290 295 300  
 Gly Met Ala Phe Ser Pro Glu Ser Pro Arg Trp Leu Phe Gln Gln Gly  
 305 310 315 320  
 Lys Val Thr Gln Ala Glu Leu Ala Val Lys Arg Leu Tyr Gly Lys Glu  
 325 330 335  
 Met Val Thr Glu Ile Met Phe Asp Leu Arg Ala Ser Gly Gln Ser Ser  
 340 345 350  
 Ser Glu Ser Glu Ala Gly Trp Phe Asp Leu Phe Ser Lys Arg Tyr Trp  
 355 360 365  
 Lys Val Val Ser Val Gly Ala Ala Leu Phe Leu Phe Gln Gln Leu Ala  
 370 375 380  
 Gly Ile Asn Ala Val Val Tyr Tyr Ser Thr Ser Val Phe Arg Ser Ala  
 385 390 395 400

Gly Ile Ala Ser Asp Val Ala Ala Ser Ala Leu Val Gly Ala Ala Asn  
405 410 415

Val Phe Gly Thr Met Val Ala Ser Ser Leu Met Asp Lys Gln Gly Arg  
420 425 430

Lys Ser Leu Leu Ile Thr Ser Phe Ser Gly Met Gly Ala Ser Met Leu  
435 440 445

Leu Leu Ala Leu Ser Phe Thr Trp Lys Ala Leu Ala Pro Tyr Ser Gly  
450 455 460

Thr Leu Ala Val Val Gly Thr Val Leu Tyr Val Leu Ser Phe Ala Leu  
465 470 475 480

Gly Ala Gly Pro Val Pro Ala Leu Leu Leu Pro Glu Ile Phe Ala Ser  
485 490 495

Arg Ile Arg Ala Lys Ala Val Ala Leu Ser Leu Gly Met His Trp Val  
500 505 510

Ser Asn Phe Phe Ile Gly Leu Tyr Phe Leu Ser Val Val Ser Lys Phe  
515 520 525

Gly Ile Ser Asn Val Tyr Leu Gly Phe Ala Ser Val Cys Ala Leu Ala  
530 535 540

Val Leu Tyr Ile Ala Gly Asn Val Val Glu Thr Lys Gly Arg Ser Leu  
545 550 555 560

Glu Glu Ile Glu Arg Glu Leu Ser Val Ala Glu  
565 570

<210> 35

<211> 1953

<212> DNA

<213> Zea mays

<220>

<221> unsure

<222> (1584)

<223> n = A, C, G or T

<400> 35

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ttgcggcgag aggctgtgcc cggccgaccg gcgagcgcgc ttcgtacgcg cgtcatgggt 120  
ggccggcagca acagaggccg cggccggcgcc ggcgaggaga gcggcagcga ccacgacggt 180  
gtgctgcgga ggccgctgct caacacgggg agctggtacc ggatgagctc gccgcagtcc 240  
agctttgccc cggggacctc ctccatggcc gtcctgcgcg agtcccacgt ctccgccttc 300  
ctctgcacgc tcacgtcgc gtcggcccc atccagttcg gcttcaccag cggcttctcc 360  
tccccgaccc aggacgccc gttcgggac ctcaacctct ctatctccga gttctcggcg 420  
ttcggatcgc tgtccaacgt cggccgcatt gtcggggcga tcgcccagcgg gcagatggcc 480  
gagtagatgg gccgtaaagg gtcgtttagt attgtgcaa tcccaaataat catcggttgg 540  
cttgcgatct ctttgcaaa agatgcctca tttcttatata tgggacgatt gcttgaaggg 600  
tttggtgtcg gcatcatatc ctacacggta ccggatataca tagcagagat atctcctcag 660  
aacatgaggg gagctttgg ttctgtgaac cagttgtctg tgaccttgg catattctg 720  
gcctatttgc tcggcatgtt tattccttgg agacttctt ctgtgatgg agccttggccc 780  
tgcacaatgt tgattcctgg actattcttc attcagaat ctccagatg gctggcaaag 840  
atgaatttga cggaaagattt tgagacgtcc ctacaagtgc tgaggggtt tgagactgac 900

atcacaacag aagtgaatga tataaaggagg gcagtggcat catcaagtaa gaggaccaca 960  
atcagtttc aagaattaaa cccaaagaaa taccgcacgc cactacttct agggattggc 1020  
ctacttgtac tgcaaaatct tagtggatc aacgggtgtac tgtttatgc aagtagcatc 1080  
ttcaagctg caggggttac aaacagcgac ttggccacct gttcaattgg tgctattcag 1140  
gtccttgcta ctggagttac aacatggctg ttagaccgag ctggacgacg catcctctc 1200  
attatttctta cctctggcat gactctatgc cttcttgcgg tttctgtgtt atttttctc 1260  
aaggataaca tttcacagga ttcttaactca tactacatct taacaatgat ctcccttgc 1320  
ggtatttgtt ctttgtcat taccttctcg tttggatgg gtgcattcc atggctcatg 1380  
atgtctgaga tcctcccggt tagcatcaag agccttggcg gaagcatcgc aacactggcc 1440  
aactggctga catccttcgc cataacaatg acgacgaact tgatgctcac gtggagtggtt 1500  
ggaggcactt ttctctcgta catgggtgtg agcccttca ccatcggtt tttgttcctt 1560  
tgggtgcgg agacgaaggg gagnaactct agaggagata caattttcg ttcgctgagc 1620  
attcagcgtc agctgcaatg gttgcccag ttttatctt agggcctgtt tcgatccat 1680  
gagctaaagc aaaaagaagc taaaatttag tcactttata aactaaagtt ccaatcagga 1740  
ggagctaaaa gtgaataaaa tagcaaaaaga atatcttta gtcacttta gcttctaaag 1800  
aggagctaga atttagtccc ttgttttagc ttatactctt tccatctaa aaaaatataag 1860  
gtctttctaa ctttctttt ttctgttcat attcattcga ataatgataa atatagacat 1920  
acgtataaac tattcattaa aaaaaaaaaaaa aaa 1953

<210> 36  
<211> 553  
<212> PRT  
<213> Zea mays

<220>  
<221> UNSURE  
<222> (528)  
<223> Xaa = ANY AMINO ACID

<400> 36

Pro	Ser	Ser	Ser	Ser	Ser	Phe	Arg	Pro	Ala	Gly	Lys	Lys	Lys	Lys	Lys
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Lys	Asn	Gln	Gly	Leu	Arg	Arg	Glu	Ala	Val	Pro	Gly	Arg	Pro	Ala	Ser
									25						30

Glu	Leu	Arg	Thr	Arg	Val	Met	Gly	Gly	Ser	Asn	Arg	Gly	Gly	Ala
									35					40

Gly	Ala	Gly	Glu	Glu	Ser	Gly	Ser	Asp	His	Asp	Gly	Val	Leu	Arg	Arg
									50					55	60

Pro	Leu	Leu	Asn	Thr	Gly	Ser	Trp	Tyr	Arg	Met	Ser	Ser	Arg	Gln	Ser
65										75					80

Ser	Phe	Ala	Pro	Gly	Thr	Ser	Ser	Met	Ala	Val	Leu	Arg	Glu	Ser	His
									85						95

Val	Ser	Ala	Phe	Leu	Cys	Thr	Leu	Ile	Val	Ala	Leu	Gly	Pro	Ile	Gln
									100						110

Phe	Gly	Phe	Thr	Ser	Gly	Phe	Ser	Ser	Pro	Thr	Gln	Asp	Ala	Met	Val
									115					120	125

Arg	Asp	Leu	Asn	Leu	Ser	Ile	Ser	Glu	Phe	Ser	Ala	Phe	Gly	Ser	Leu
									130					135	140

Ser	Asn	Val	Gly	Gly	Met	Val	Gly	Ala	Ile	Ala	Ser	Gly	Gln	Met	Ala
									145					150	155

Glu Tyr Ile Gly Arg Lys Gly Ser Leu Met Ile Ala Ala Ile Pro Asn  
 165 170 175  
 Ile Ile Gly Trp Leu Ala Ile Ser Phe Ala Lys Asp Ala Ser Phe Leu  
 180 185 190  
 Tyr Met Gly Arg Leu Leu Glu Gly Phe Gly Val Gly Ile Ile Ser Tyr  
 195 200 205  
 Thr Val Pro Val Tyr Ile Ala Glu Ile Ser Pro Gln Asn Met Arg Gly  
 210 215 220  
 Ala Leu Gly Ser Val Asn Gln Leu Ser Val Thr Phe Gly Ile Phe Leu  
 225 230 235 240  
 Ala Tyr Leu Leu Gly Met Phe Ile Pro Trp Arg Leu Leu Ala Val Ile  
 245 250 255  
 Gly Ala Leu Pro Cys Thr Met Leu Ile Pro Gly Leu Phe Phe Ile Pro  
 260 265 270  
 Glu Ser Pro Arg Trp Leu Ala Lys Met Asn Leu Thr Glu Asp Cys Glu  
 275 280 285  
 Thr Ser Leu Gln Val Leu Arg Gly Phe Glu Thr Asp Ile Thr Thr Glu  
 290 295 300  
 Val Asn Asp Ile Lys Arg Ala Val Ala Ser Ser Ser Lys Arg Thr Thr  
 305 310 315 320  
 Ile Ser Phe Gln Glu Leu Asn Gln Lys Tyr Arg Thr Pro Leu Leu  
 325 330 335  
 Leu Gly Ile Gly Leu Leu Val Leu Gln Asn Leu Ser Gly Ile Asn Gly  
 340 345 350  
 Val Leu Phe Tyr Ala Ser Ser Ile Phe Lys Ala Ala Gly Val Thr Asn  
 355 360 365  
 Ser Asp Leu Ala Thr Cys Ser Leu Gly Ala Ile Gln Val Leu Ala Thr  
 370 375 380  
 Gly Val Thr Thr Trp Leu Leu Asp Arg Ala Gly Arg Arg Ile Leu Leu  
 385 390 395 400  
 Ile Ile Ser Thr Ser Gly Met Thr Leu Cys Leu Leu Ala Val Ser Val  
 405 410 415  
 Val Phe Phe Leu Lys Asp Asn Ile Ser Gln Asp Ser Asn Ser Tyr Tyr  
 420 425 430  
 Ile Leu Thr Met Ile Ser Leu Val Gly Ile Val Ser Phe Val Ile Thr  
 435 440 445  
 Phe Ser Phe Gly Met Gly Ala Ile Pro Trp Leu Met Met Ser Glu Ile  
 450 455 460  
 Leu Pro Val Ser Ile Lys Ser Leu Gly Gly Ser Ile Ala Thr Leu Ala  
 465 470 475 480

Asn	Trp	Leu	Thr	Ser	Phe	Ala	Ile	Thr	Met	Thr	Thr	Asn	Leu	Met	Leu
	485								490					495	
Thr	Trp	Ser	Val	Gly	Gly	Thr	Phe	Leu	Ser	Tyr	Met	Val	Val	Ser	Ala
	500							505					510		
Phe	Thr	Ile	Val	Phe	Val	Val	Leu	Trp	Val	Pro	Glu	Thr	Lys	Gly	Xaa
	515						520					525			
Asn	Ser	Arg	Gly	Asp	Thr	Ile	Phe	Val	Ser	Leu	Ser	Ile	Gln	Arg	Gln
	530					535					540				
Leu	Gln	Trp	Leu	Pro	Glu	Cys	Leu	Ser							
	545					550									

<210> 37

<211> 740

<212> PRT

<213> Oryza sativa

<400> 37

Met	Ala	Gly	Ala	Val	Leu	Val	Ala	Ile	Ala	Ala	Ser	Ile	Gly	Asn	Leu
1				5				10					15		

Leu	Gln	Gly	Trp	Asp	Asn	Ala	Thr	Ile	Ala	Gly	Ala	Val	Leu	Tyr	Ile
				20				25					30		

Lys	Lys	Glu	Phe	Asn	Leu	Gln	Ser	Glu	Pro	Leu	Ile	Glu	Gly	Leu	Ile
				35			40				45				

Val	Ala	Met	Ser	Leu	Ile	Gly	Ala	Thr	Ile	Ile	Thr	Thr	Phe	Ser	Gly
		50				55				60					

Ala	Val	Ala	Asp	Ser	Phe	Gly	Arg	Arg	Pro	Met	Leu	Ile	Ala	Ser	Ala
65				70				75					80		

Val	Leu	Tyr	Phe	Val	Ser	Gly	Leu	Val	Met	Leu	Trp	Ala	Pro	Asn	Val
				85				90				95			

Tyr	Val	Leu	Leu	Ala	Arg	Leu	Ile	Asp	Gly	Phe	Gly	Ile	Gly	Leu
				100			105				110			

Ala	Val	Thr	Leu	Val	Pro	Leu	Tyr	Ile	Ser	Glu	Thr	Ala	Pro	Thr	Asp
115					120				125						

Ile	Arg	Gly	Leu	Leu	Asn	Thr	Leu	Pro	Gln	Phe	Ser	Gly	Ser	Gly	Gly
					130		135			140					

Met	Phe	Leu	Ser	Tyr	Cys	Met	Val	Phe	Gly	Met	Ser	Leu	Met	Pro	Gln
145					150			155				160			

Pro	Asp	Trp	Arg	Ile	Met	Leu	Gly	Val	Leu	Ser	Ile	Pro	Ser	Leu	Ile
				165				170			175				

Tyr	Phe	Ala	Leu	Thr	Ile	Phe	Tyr	Leu	Pro	Glu	Ser	Pro	Arg	Trp	Leu
				180				185			190				

Val Ser Lys Gly Arg Met Ala Glu Ala Lys Arg Val Leu Gln Gly Leu  
 195 200 205  
 Arg Gly Arg Glu Asp Val Ser Gly Glu Met Ala Leu Leu Val Glu Gly  
 210 215 220  
 Leu Gly Val Gly Lys Asp Thr Lys Ile Glu Glu Tyr Ile Ile Gly Pro  
 225 230 235 240  
 Asp Asp Glu Leu Ala Asp Glu Gly Leu Ala Pro Asp Pro Glu Lys Ile  
 245 250 255  
 Lys Leu Tyr Gly Pro Glu Glu Gly Leu Ser Trp Val Ala Arg Pro Val  
 260 265 270  
 His Gly Gln Ser Ala Leu Gly Ser Ala Leu Gly Leu Ile Ser Arg His  
 275 280 285  
 Gly Ser Met Val Ser Gln Gly Lys Pro Leu Val Asp Pro Val Val Thr  
 290 295 300  
 Leu Phe Gly Ser Val His Glu Lys Met Pro Glu Ile Met Gly Ser Met  
 305 310 315 320  
 Arg Ser Thr Leu Phe Pro Asn Phe Gly Ser Met Phe Ser Val Ala Glu  
 325 330 335  
 Gln Gln Gln Ala Lys Gly Asp Trp Asp Ala Glu Ser Gln Arg Glu Gly  
 340 345 350  
 Glu Asp Tyr Gly Ser Asp His Gly Gly Asp Asp Ile Glu Asp Ser Leu  
 355 360 365  
 Gln Ser Pro Leu Ile Ser Arg Gln Ala Thr Ser Val Glu Gly Lys Glu  
 370 375 380  
 Ile Ala Ala Pro His Gly Ser Ile Met Gly Ala Val Gly Arg Ser Ser  
 385 390 395 400  
 Ser Leu Met Gln Gly Gly Glu Ala Val Ser Ser Met Gly Ile Gly Gly  
 405 410 415  
 Gly Trp Gln Leu Ala Trp Lys Trp Thr Glu Arg Glu Gly Ala Asp Gly  
 420 425 430  
 Glu Lys Glu Gly Gly Phe Gln Arg Ile Tyr Leu His Glu Glu Gly Val  
 435 440 445  
 Thr Gly Asp Arg Arg Gly Ser Ile Leu Ser Leu Pro Gly Gly Asp Val  
 450 455 460  
 Pro Pro Gly Gly Glu Phe Val Gln Ala Ala Ala Leu Val Ser Gln Pro  
 465 470 475 480  
 Ala Leu Tyr Ser Lys Glu Leu Met Glu Gln Arg Leu Ala Gly Pro Ala  
 485 490 495  
 Met Val His Pro Ser Gln Ala Val Ala Lys Gly Pro Lys Trp Ala Asp  
 500 505 510

Leu Phe Glu Pro Gly Val Lys His Ala Leu Phe Val Gly Ile Gly Ile  
 515 520 525  
 Gln Ile Leu Gln Gln Phe Ala Gly Ile Asn Gly Val Leu Tyr Tyr Thr  
 530 535 540  
 Pro Gln Ile Leu Glu Gln Ala Gly Val Gly Val Leu Leu Ala Asn Ile  
 545 550 555 560  
 Gly Leu Ser Ser Ser Ala Ser Ile Leu Ile Ser Gly Leu Thr Thr  
 565 570 575  
 Leu Leu Met Leu Pro Ser Ile Gly Ile Ala Met Arg Leu Met Asp Met  
 580 585 590  
 Ser Gly Arg Arg Phe Leu Leu Leu Ala Thr Ile Pro Ile Leu Ile Val  
 595 600 605  
 Ala Leu Ala Ile Leu Ile Leu Val Asn Ile Leu Asp Val Gly Thr Met  
 610 615 620  
 Val His Ala Ser Leu Ser Thr Val Ser Val Ile Leu Tyr Phe Cys Phe  
 625 630 635 640  
 Phe Val Met Gly Phe Gly Pro Ile Pro Asn Ile Leu Cys Ala Glu Ile  
 645 650 655  
 Phe Pro Thr Thr Val Arg Gly Ile Cys Ile Ala Ile Cys Ala Leu Thr  
 660 665 670  
 Phe Trp Ile Gly Asp Ile Ile Val Thr Tyr Thr Leu Pro Val Met Leu  
 675 680 685  
 Asn Ala Ile Gly Leu Ala Gly Val Phe Gly Ile Tyr Ala Val Val Cys  
 690 695 700  
 Ile Leu Ala Phe Leu Phe Val Phe Met Lys Val Pro Glu Thr Lys Gly  
 705 710 715 720  
 Met Pro Leu Glu Val Ile Thr Glu Phe Phe Ser Val Gly Ala Lys Gln  
 725 730 735  
 Ala Lys Glu Asp  
 740

<210> 38  
 <211> 501  
 <212> PRT  
 <213> Oryza sativa

<400> 38  
 Met Ser Phe Arg Gly Glu Glu Ser Gly Gly Glu Asp Gly Gly Arg Thr  
 1 5 10 15  
 Ala Ser Ala Ser Asp Leu Arg Lys Pro Phe Leu His Thr Gly Ser Trp  
 20 25 30  
 Tyr Lys Met Ser Ser Ala Gly Gly Gly Gly Met Gly Ser Arg Leu  
 35 40 45

Gly Ser Ser Ala Tyr Ser Leu Arg Asp Ser Ser Val Ser Ala Val Leu  
 50 55 60

Cys Thr Leu Ile Val Ala Leu Gly Pro Ile Gln Phe Gly Phe Thr Cys  
 65 70 75 80

Gly Phe Ser Ser Pro Thr Gln Asp Ala Ile Ile Ser Asp Leu Gly Leu  
 85 90 95

Thr Leu Ser Glu Phe Ser Leu Phe Gly Ser Leu Ser Asn Val Gly Ala  
 100 105 110

Met Val Gly Ala Ile Ala Ser Gly Gln Ile Ala Glu Tyr Ile Gly Arg  
 115 120 125

Lys Gly Ser Leu Met Ile Ala Ala Ile Pro Asn Ile Ile Gly Trp Leu  
 130 135 140

Ala Ile Ser Phe Ala Lys Asp Ser Ser Phe Leu Phe Met Gly Arg Leu  
 145 150 155 160

Leu Glu Gly Phe Gly Val Gly Val Ile Ser Tyr Val Val Pro Val Tyr  
 165 170 175

Ile Ala Glu Ile Ala Pro Gln Thr Met Arg Gly Ala Leu Gly Ser Val  
 180 185 190

Asn Gln Leu Ser Val Thr Ile Gly Ile Leu Leu Ala Tyr Leu Leu Gly  
 195 200 205

Met Phe Val Pro Trp Arg Ile Leu Ser Val Leu Gly Ile Leu Pro Cys  
 210 215 220

Ser Ile Leu Ile Pro Gly Leu Phe Phe Ile Pro Glu Ser Pro Arg Trp  
 225 230 235 240

Leu Ala Lys Met Gly Lys Met Glu Asp Phe Glu Ser Ser Leu Gln Val  
 245 250 255

Leu Arg Gly Phe Glu Thr Asp Ile Ala Val Glu Val Asn Glu Ile Lys  
 260 265 270

Arg Ser Val Gln Ser Ser Arg Arg Arg Thr Thr Ile Arg Phe Ala Asp  
 275 280 285

Ile Lys Gln Lys Arg Tyr Ser Val Pro Leu Met Val Gly Ile Gly Leu  
 290 295 300

Leu Val Leu Gln Gln Leu Ser Gly Val Asn Gly Ile Leu Phe Tyr Ala  
 305 310 315 320

Ala Ser Ile Phe Lys Ala Ala Gly Leu Thr Asn Ser Asn Leu Ala Thr  
 325 330 335

Phe Gly Leu Gly Val Val Gln Val Val Ala Thr Gly Val Thr Thr Trp  
 340 345 350

Leu Thr Asp Lys Ala Gly Arg Arg Leu Leu Leu Ile Ile Ser Thr Thr  
 355 360 365

Gly Met Thr Ile Thr Leu Val Val Val Ser Val Ser Phe Phe Val Lys  
370 375 380

Asp Asn Ile Thr Asn Gly Ser His Leu Tyr Ser Val Met Ser Met Leu  
385 390 395 400

Ser Leu Val Gly Leu Val Ala Phe Val Ile Ser Phe Ser Leu Gly Leu  
405 410 415

Gly Ala Ile Pro Trp Ile Ile Met Ser Glu Ile Leu Pro Val Asn Ile  
420 425 430

Lys Ser Leu Ala Gly Ser Val Ala Thr Leu Ala Asn Trp Leu Thr Ala  
435 440 445

Trp Leu Ile Thr Met Thr Ala Ser Leu Met Leu Ser Trp Ser Asn Gly  
450 455 460

Gly Thr Phe Ala Ile Tyr Ala Ala Val Cys Ala Gly Thr Leu Val Phe  
465 470 475 480

Val Cys Leu Trp Val Pro Glu Thr Lys Gly Arg Thr Leu Glu Glu Ile  
485 490 495

Ala Phe Ser Phe Arg  
500